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Ohshima Island, a small island located 120 km away from the center of Tokyo, Japan, and sex- and age- matched patients in an urban area in Tokyo. Assessment scales included the Resilience Scale (RS), EuroQol and Positive and Negative Syndrome Scale. Levels of salivary alpha-amylase (SAA) and plasma brain-derived neurotrophic factor (BDNF) were also examined, together with multiple demographic variables. Values of interest were compared using independent t-test or chi-squared test. Multiple linear regression analysis was performed to identify factors that were associated with RS total scores in the whole sample ( $N=80$ ); the following factors were included as independent variables: location of residence (Ohshima Island or urban area), sex, age ( $< 50$  years or  $\geq 50$ ), duration of illness, EQ-5D VAS score, use of social resources, history of low birth weight ( $< 2500$  g), GAF score, PANSS total score and biomarkers (i.e. SAA and plasma BDNF levels). A  $P$ -value of  $< 0.05$  was considered statistically significant (two-tailed). **Results:** Eighty subjects were included (40 each in two areas). No significant difference was found in the RS scores between the two groups (mean  $\pm$  S.D.,  $103.9 \pm 26.1$  in Ohshima Island versus  $109.4 \pm 22.3$  in the urban area,  $P=0.32$ ). There were significant differences in some of the characteristics between the two groups: higher BMI score, more siblings, less frequency of low birth weight, fewer previous hospitalizations, more frequent use of anticholinergic drugs, less use of social resources and lower plasma BDNF level on Ohshima Island as compared with the urban Tokyo sample. The linear regression analysis revealed that a longer duration of illness and a higher EQ-5D VAS score were significantly associated with a greater RS total score ( $P=0.037$  and  $P=0.016$ , respectively) whereas biological data or the other factors including illness severity did not exhibit any significant relationships with resilience levels.

**Discussion:** Patients with schizophrenia living on a remote island and in urban area showed comparable degrees of resilience despite the difference in geographical location. Although resilience levels are known to be influenced by various environmental factors, those factors in the two groups, both of which are parts of Tokyo Metropolitan City, may have no essential differences. Moreover, even if the surrounding environment and cultural background are different, a similarity in illness severity and social functioning in the two groups may be a basis for similar resilience levels. On the other hand, a significant correlation was found between a longer duration of illness and greater resilience levels, which is a novel finding to the best of our knowledge. Illness duration and subjective quality of life may be more pertinent than urbanicity of residential area in determining resilience levels. Namely, greater resilience among people with a longer duration of illness may represent their successful psychological coping and adaptation.

### T137. Socio demographic and clinical characteristics in first episode psychosis

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**Background:** In this study the relation between socio-demographic variables, alcohol and substance use, the environmental factors such as traumatic life events and psychotic symptoms in the first episode psychosis patients were examined.

**Methods:** The study sample consisted of 60 First Episode Psychosis patients and 60 healthy control subjects. Psychosocial risk factors were assessed using Social Environment Measurement Tool, Life Events Scale, Tobacco Alcohol Use Scale and Substance/Marijuana Use Scale. In addition to the clinical evaluation of the patient group PANSS, the Young Mania Symptoms Scale and Insight Scale were used for detecting psychiatric symptoms.

**Results:** We found statistically significant differences regarding the last year life events, birth season, obsessive compulsive symptoms, familial liability of schizophrenia and psychosis in 1st degree relatives, and attempted suicide in patients with first psychotic episode compared to healthy controls.

**Discussion:** Family liability and substance use were significant risk factors related to psychotic symptoms in patients with first episode psychosis.

### T138. Schizophrenia-spectrum disorders and violent reoffending: a national cohort study of convicted prisoners

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**Background:** There are more than 10 million currently imprisoned, of which around 4% have schizophrenia-spectrum disorders according to systematic reviews. In the US and UK, over one-third of released prisoners are reconvicted for a new crime within 2 years. Evidence on whether schizophrenia-spectrum disorders increase the risk of reoffending is inconsistent. With large numbers of individuals with psychotic disorders in jails and prisons, clarification of this association is important to inform mental health services in criminal justice and on release from custody.

**Methods:** We undertook a longitudinal cohort study of 47 326 prisoners who have been imprisoned since January 1, 2000 and released before December 31, 2009 in Sweden. Data on diagnosed psychiatric disorders were obtained from both inpatient and out-patient registers. Socio-demographic and criminological factors were obtained from other population-based registers. Hazard ratios (HRs) for violent reoffending were calculated by Cox regression.

**Results:** 1237 (3%) of the men 130 (4%) of women had schizophrenia-spectrum disorders. A significantly increased hazard was also found for male prisoners with schizophrenia-spectrum disorders after adjustment for socio-demographic and criminological factors (adjusted HR=1.20 (1.09-1.33), but not in the women (HR =0.74 [0.45-1.20]). Comorbid substance use disorders increased these hazards (Adjusted HR in the men = 2.68 [2.41-2.98]).

**Discussion:** Contrary to expert opinion and previous research, we found that schizophrenia-spectrum disorders are independent risk factors for violent reoffending in male prisoners. National violence prevention strategies should consider the role of prison psychiatry.

### T139. Predicting clinical outcomes in psychotic disorders using electronic case registers and natural language processing

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**Background:** It is not possible to reliably predict clinical outcomes in psychotic disorders. Existing research studies are based on relatively modest sample sizes and may not be representative of everyday clinical practice. Clinical information is widely recorded in the form of electronic health records (EHRs). The majority of useful data are stored in unstructured free text entries. However, the large volume of free text means that it is not feasible to manually read through records to identify data of interest. Automated information extraction methods such as natural language processing (NLP) offer the opportunity to quickly extract and analyse large volumes of meaningful data from free text EHRs. I present a summary of three studies using this approach to investigate clinical outcomes in people with schizophrenia.

**Methods:** Dataset: South London and Maudsley NHS Trust (SLaM) Biomedical Research Centre (BRC) Case Register comprising anonymised EHRs of over 250,000 people. NLP development: The software package TextHunter was used. All sentences containing keywords relevant to the constructs investigated were extracted using a support vector machine learning (SVM) approach. Predictor variables: presentation to high-risk clinical services, cannabis use (NLP-derived) and negative symptoms (NLP-derived). Outcomes: number of days spent in hospital, frequency of hospital admission and antipsychotic treatment failure. Covariates: age, gender, ethnicity, marital status and diagnosis. Statistical analysis: multivariable logistic, negative binomial, linear regression and mediation analysis using STATA.

**Results:** (i) Clinical outcomes of FEP in high-risk services ( $n=2,943$ ): 164 patients with FEP (5.6%) presented to OASIS, a clinical service in South London for young people with an at-risk-mental-state (ARMS) for psychosis. Presentation to the high-risk service was associated with 17 fewer days spent in hospital (95% CI -33.7, -0.3) and a lower frequency of admission (incidence rate ratio: 0.49, 0.39-0.61) in the 24 months following referral, as compared to patients who presented to conventional services. (ii) Cannabis and treatment failure in FEP ( $n=2,026$ ): Cannabis use was present in 46.3% of people with FEP. It

was associated with increased frequency of hospital admission (incidence rate ratio 1.50, 1.25-1.80) and greater number of days spent in hospital (B coefficient 35.1 days, 12.1-58.1). An increase in the number of unique antipsychotics prescribed to cannabis users mediated an increased frequency of hospital admission (natural indirect effect: 1.11, 1.04-1.17; total effect: 1.41, 1.22-1.64) and greater number of days spent in hospital (NIE: 16.1, 6.7-25.5; TE: 19.9, 2.5-37.3). (iii) Negative symptoms and clinical outcomes in chronic schizophrenia ( $n=7,678$ ): 55.7% of people with schizophrenia had at least one negative symptom documented. Negative symptoms were associated with increased likelihood of hospital admission (odds ratio 1.24, 95% CI 1.10-1.39), re-admission (1.58, 1.28-1.95) and length of stay (B coefficient 20.5, 7.6-33.5).

**Discussion:** It was possible to use EHR data extracted using NLP to investigate associations with clinical outcomes of psychosis in large sample sizes which would otherwise have been unfeasible to investigate using direct patient recruitment. These findings are important for mental healthcare services as they suggest that early detection of psychosis in high-risk services may be associated with better outcomes, and that greater attention should be given to cannabis use and negative symptoms in people with established psychotic disorders. The NLP tools developed in these studies also have the potential to support real-time clinical decision making at an individual patient level.

#### T140. A comparative study on the prevalence rate and treatment of agitation among Chinese newly hospitalized schizophrenics between psychiatric hospitals and general hospitals

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**Background:** Agitation is frequently reported with newly hospitalized patients suffering from schizophrenia, and may result in substantial adverse outcomes for themselves, others, and property. This study was designed to investigate the prevalence rate and treatment of agitation among newly hospitalized schizophrenics between psychiatric hospitals and general hospitals.

**Methods:** We conducted a non-interventional, multicenter, observational study in 10 psychiatric hospitals and 4 general hospitals. Information about agitation and treatment of all enrolled patients were investigated including general demographic data, disease characteristics, Clinical Global Impression-Severity (CGI-S), Positive and Negative Syndrome Scale-Excited Component (PANSS-EC), Modified Overt Aggression Scale (MOAS) and prescription.

**Results:** 1. Of 1512 patients enrolled in the study, 1400 (92.6%) were eligible; the prevalence of agitation among psychiatric hospitals was significantly higher than that of general hospitals (64.30% vs. 52.8%,  $P=0.01$ ). 2. The general hospitals had higher proportion of oral medication  $P=0.05$ , whereas the psychiatric hospitals had higher proportion of intramuscular medication  $P=0.01$  and a combination of oral medication with intramuscular medication  $P=0.01$ . Oral medication most frequently prescribed was olanzapine 32.24%, subsequently were risperidone 30.25%, subsequently were clozapine 12.90%; intramuscular medication most frequently prescribed was haloperidol 35.40%, subsequently were ziprasidone 9.61%, subsequently were benzodiazepines 4.69%. The general hospitals had more than double use frequency of clozapine than the psychiatric hospitals  $P=0.01$ . With respect to ziprasidone intramuscular, 12.5% of patients from psychiatric hospital had ziprasidone intramuscular, while none of the patients from psychiatric hospital did. No statistical difference were found in oral risperidone  $P=0.05$  and haloperidol intramuscular  $P=0.05$  between the psychiatric hospitals and general hospitals.

**Discussion:** Our study indicated that, in China, the prevalence of agitation among psychiatric hospitals was significantly higher than that of general hospitals (64.30% vs. 52.8%,  $P=0.01$ ). In addition, patients in the psychiatric hospitals experienced a significantly older age, longer illness duration, more numbers of hospitalizations and higher CGI score, higher proportion of history of aggressive behaviors and involuntary admission than the general hospitals. These findings suggest that the psychiatric hospital group were more likely to be in

more complex situations, higher risk of uncooperativeness and refractory schizophrenia, which may contributing to the different treatment. For the agitation sample, the psychiatric hospitals were more inclined to use intramuscular medication in managing this condition with schizophrenia, mainly haloperidol and ziprasidone. While no one used ziprasidone intramuscular in general hospital, considering the high price, uneven availability and deficient clinical practice play a role. As to clozapine, the use frequency in psychiatric hospitals and general hospitals was 9.8% and 23.4% respectively. Over the last decade, there was a falling trend in using frequency of clozapine in China. Since its unique advantages in psychiatric illness, it is significant to avoid the low utilization of clozapine and improve the rational use in the indication.

#### T141. The Gothenburg research and investigation on psychosis - grip: outcomes from a standardized clinical protocol for psychotic patients

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**Background:** Patients with schizophrenia-spectrum disorders often have other mental and physical health problems. This complexity poses challenges for clinicians to make correct judgements regarding diagnosis and treatment. A standardized clinical protocol was developed in order to improve diagnostics and provide the most adequate support for patients who are referred to the Department of Psychotic Disorders at Sahlgrenska University Hospital in Gothenburg, Sweden. The Department of Psychotic Disorders serves roughly 3000 patients. The standardized protocol consists of a somatic examination that includes health blood tests, a spinal tap, magnetic resonance imaging, and a neurological examination. Further, the protocol includes structured and semi-structured interviews with patients and family members that cover family and patient history, substance habits, and psychiatric symptoms. Moreover, screening instruments for general psychiatric symptoms, psychosis symptoms, and neuropsychiatric symptoms are used. Finally, neuropsychological, physical, and social functioning is also evaluated. All patients who are referred to the Department are offered an investigation according to the clinical protocol and can decline if they wish. The patients who agree to take part in the clinical investigation are also asked to participate in a research project (GRIP) attached to the clinical investigation. If they choose to give written informed consent, all data collected with the standardized clinical protocol can be coded and used for research purposes. The only difference between the patients who participate in GRIP and those who do not is that the blood and liquor from research subjects is stored for future use (including genetic analyses). All patients receive regular and structured follow-ups. One major aim of the GRIP study is to improve diagnostics by grouping subjects regarding symptom profiles, i.e. subgroups with similar phenotypes. It is possible to combine structured clinical information with genetics, neuroimaging, and liquor analyses to this end. The aim of the present study is to describe the group of research participants regarding the variables included in the clinical protocol.

**Methods:** The GRIP study has been approved by the Swedish Ethics Committee. The study design is naturalistic. The study is built into the ordinary clinical practice. All subjects who give written consent are included regardless of working diagnosis. No interventions are suggested. The instruments used to collect data include the PANSS and M.I.N.I. for psychosis and general psychiatric symptoms, the RAADS-R, ASSQ, and BAARS-IV for neuropsychiatric symptoms, the RAND36 for general health, the AUDIT and DUDIT for alcohol and substance habits, the WAIS-IV, TMT, and Tower of London for neuropsychological functioning.

**Results:** To date, 45 patients have been asked to participate in GRIP, 38 have given written informed consent, and three have withdrawn their consent. Of the 35 participants, 13 were women and 22 were men. The mean age was 36.5 years ( $SD=10.3$ ). Eighteen participants have agreed to a spinal tap whereas eight have declined. We are in the process of analyzing the first results from the GRIP study and will present clinically relevant results from spinal taps, MRI, and health blood samples. We will also describe the symptom profiles of the